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Personal Privacy/Exemption 6
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Sent By E-Mail
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Subject and Email subject: NorthMet Water Appropriation Permits

We are retired environmental scientists with a combined 60 years of experience with federal and state government. Bruce Johnson has experience in water quality research, regulations enforcement, and as a regulated entity. Maureen Johnson is a former Minnesota Pollution Control Agency project manager of federal and state Superfund cleanup projects for 21 years. Maureen has required Superfund Human Health Risk and Ecological Assessments and cleanup plans to mitigate the risks in her projects, including the U.S. Army Ammunition Plant and Perham Arsenic Site. Maureen has also worked as a water quality scientist for the U.S. Environmental Protection Agency and the U.S. Forest Service. We live in the Minnesota's 8th congressional district. Since the 1930's our family owns land in St. Louis County, approximately 18 miles from the PolyMet NorthMet site.

Under the provisions of the Minnesota Environmental Rights Act (Minn. Stat. Ch. 116b), we make these comments to protect Minnesota's air, water, land, and other natural resources from pollution and destruction. The following are our comments related to the proposed water appropriation permits for the PolyMet/NorthMet project.

NorthMet Water Appropriation Permits cannot be issued because the proposed operation, that requests use of the volumes of water and will produce the discharges of treated water, cannot be shown to protect public health using the AERA, as required by MDNR rules for water permits (Minn. Stat. 103G.297(2)).

The table below provides individual substantive comments requiring individual substantive responses from the regulatory parties responding to citizen comments. As a Supervisor at Minnesota Department of Transportation, senior scientist at Minnesota Pollution Control Agency, and former science staffer at Minnesota Department of Natural Resources, I, Bruce Johnson, one of the authors of these comments, understood the need at Mn/DOT to have risk assessment and toxicology expertise on staff and hired a Chief Toxicologist. This person has the ability to evaluate whether the FEIS risk evaluation was accurate, complete, transparent, reproducible, reliable and other required attributes found in Minnesota Rules and federal regulations. I asked this person to look at the FEIS to determine if the risk estimates, which I thought to be low, were valid. This person was kind enough to help me on this important issue. Our

comments are in addition to this person's substantive comment below that is the intellectual product of a former Chief Toxicologist at Minnesota Department of Transportation.

Expert's Substantive Comment

This person's responses to me included:

1. A summary (FEIS summary of AERA findings) of an unreleased and unavailable report (full standard AERA report) is not the same as reviewing a technical report.

2. A summary neither confirms nor denies summarized risk findings.

3. A summary is not reviewable to determine if a risk analysis was done correctly and risk findings are reliable, therefore the FEIS AERA findings have no technical basis and cannot be verified as technically accurate, complete, etc.

4. A review of available non-PolyMet documents publicly available on the internet indicate that an AERA report is not peer reviewable as written.

5. No final AERA standard report has been provided to the public for review or attached to any EIS document (e.g. from Feb. 2005 AERA to the alleged AERA used to support the FEIS certification), to allow for standard scientific peer review, materials and methods verification, or any reasonable analysis of the work to occur.

6. No technical basis has been established to support any risk findings, because no standard final AERA's being provided for public review at any time, in any form, and attached to any EIS document during the ten years of the EIS project.

7. No technical basis has been established to support any risk findings, as a result of the fact the the project parameters were changed so often that one does not know if the FEIS calculated risks matches one or any project iteration.

8. The AERA has proven insensitive to changes in the project parameters and changes in chemicals of concern risk toxicity values, emission sources or rates, or any other identified parameter demonstrating that the AERA is inadequate as a bona fide, sensitive, and reliable risk analysis tool.

9. AERA documentation provided by MPCA on the Internet has not been verified and accepted as technically correct or satisfying USEPA or MDH as a replacement tool for human health or ecological risk assessments at complex industrial or mining sites despite what has been written by MPCA to the contrary (e.g. even within the limited scope for risk analysis, there is no mention or quantification of dermal toxicity from airborne chemicals, materials, or substances, a clear violation of standard risk assessment procedures).

10. Documents provided with the FEIS and other EIS documents indicates that standard scientific referencing and writing and report procedures were not followed by the RGU for AERA products per MEPA/NEPA and other applicable requirements.

11. Therefore, MDNR, USACE and USFS could not, did not, or would not review the core health effects document(s), allegedly one or more full standard AERA reports, as legally required by Minnesota Rules, MEPA, NEPA, APA, federal Data Quality Act, CEQ Rules, etc.

12. Due to the inability to certify these steps and legal requirements, MnDNR, USACE, and USFS should not and could not, under violation of state and federal laws and procedures, certify the FEIS.

13. Having not satisfied these requirements or not taken these review steps at all, the co-signatories to the FEIS have likely violated numerous civil and criminal state and federal laws that require investigation.

14. A certified FEIS, a requirement to proceed to permitting, having demonstrably failed to meet legal requirements should then result in a halt to permitting until the FEIS is made adequate through supplemental reports.

15. Supplements to the risk portions of the fatally flawed FEIS must demonstrate the use of actual USEPA and MDH approved methods, not those used in the AERA process that do *not* meet USEPA and/or MDH standard methods (e.g. total risk summation regardless of toxic mechanism, rounding down to achieve acceptable risk levels, and use of risk drivers and other techniques that result in removal of chemicals and their risks from proper risk summation).

16. Failing to use standard USEPA risk assessment methods, the RGU removed many of the standard risk analyses (human health risk assessment and ecological risk assessment) that would inform permits to protect soil, water, sediments, humans, and ecological systems and species and, as a result, these permits will have no health and safety basis because it was not established in the FEIS.

17. It appears that the RGU et al. did not take a hard look at all reasonable risks from facility, activity, or processes and, as a result, the RGU and co-signatories showed bad faith in the production of the EIS documents and certification.

18. It appears that the RGU and co-signatories did not quantitatively or qualitatively account for the risk and hazards to over 90% by weight of materials known or expected to be released from major and minor project activities.

19. It appears that the RGU and co-signatories have and are using restricted AERA standard reports to satisfy risk concerns — reports that are not shared with the public in their entirety.

20. In summary, lacking any final AERA standard report publicly available to review, it is impossible for this person or any qualified reviewer to certify any risk findings, thus invalidating the FEIS certification under state and federal law.

21. In summary, MN permitting is based on an FEIS certified as meeting all legal requirements and is not found to have violated serious technical requirements or laws, rules, or regulations.

22. Having found such violations and irregularities, the government agencies must correct these deficiencies prior to permitting.

23. It would be inefficient and wasteful to continue to permitting process until such time as the procedural violations, technical inadequacies, and civil infractions, and criminal violations have been rectified and/or adjudicated.

24. Contrary to MEPA/NEPA requirements, there is no attribution of PolyMet contractor authors, their skill sets, their expertise and experience, or what parts of the FEIS and/or previous documents are authored by these contractors or the project proposer themselves in the FEIS document as required. For example, we have no idea who wrote the AERA full report versions and if they had the toxicology, risk assessment or other expertise to author such documents. The final standard AERA reports have not been provided and distributed with the FEIS document. MPCA created the AERA process for permitting. The AERA process is unacceptable for the EIS which has different requirements.

Conclusions: No authors, no final reports, no peer review and no public distribution of final AERA standard reports means no USACE, USFS and MnDNR hands-on certification of report acceptability under MEPA and NEPA requirements to include public inspection and comment. One cannot comment, certify or approve a document one does not have. The State of Minnesota and Federal Agencies participating in the FEIS have no right under law to make the FEIS technical reports a restricted and compartmentalized private party/government interaction which is exactly what the State and Federal Government appear to have done. Each fact is documented and, as a result, are not unsubstantiated assertions. There are processes and equations that are both unique to the AERA and are technically incorrect, according to methods used by USEPA and all the rest of the states in the United States during the decade of FEIS production, resulting in the conclusions that the AERA process is not technically acceptable and generally recognized as it stands.

As a result of these findings that are documented by this person, MNDNR, USACE, and USFS could not review the summary AERA report in the FEIS or the AERA full Report because these government agencies did not hire any subject matter consultants, did not use the Minnesota Department of Health's subject matter experts as internal consultants for report review, and did not advertise for such skills in the contractors they hired during the ten year run of the EIS process.

Consequences of Procedural Violations

The above issues are clear governmental violations of MEPA and NEPA and other laws related to this process. As scientists but not risk assessment or toxicology experts, we have reviewed the comments above and the AERA summary found in the FEIS and concur with the expert's findings. We could not make any conclusions about the levels of risks posed by the PolyMet operation. One must also ask which of the innumerable PolyMet operating plans this summary AERA in the FEIS represented. If both this expert and we cannot review the FEIS risk analysis summary for accuracy and completeness other than to say that it is not complete and unknown if it is accurate, then nobody can— except those who produced the document and who are not listed in the List of Preparers. The FEIS has therefore failed to produce an acceptable MEPA/NWPA risk analysis that covers all releases from all operations and their human health and ecological risks.

Given the errors and omissions listed above, it is obvious that the FEIS should be withdrawn and be started again from the beginning with one PolyMet proposed plan to drive the analysis. No

change in the operation should be allowed in the future without an additional EIS that identifies the human health impacts.

As a result of all these procedural and technical omissions, errors, and civil/criminal violations of state and federal laws, the FEIS findings should be immediately vacated to avoid any further embarrassment to the MNDNR, USACE, and USFS who are fully aware of these facts and have yet to act. Now that this "done deal" has been exposed (i.e. a certified risk analysis in the FEIS that was never verified for MEPA/NEPA scientific standards), federal and state legal authorities should investigate these activities and take appropriate actions including removal of the FEIS findings, resulting in a complete halt to permitting since the permit-required FEIS certification should be removed.

Project Status

The PolyMet/NorthMet project is a very chemically complex, major, heavy industry that is to be developed on a taconite industry brownfield in a water rich area over a sole source aquifer. Only the brownfield soil contamination study was approved by MPCA, leaving the water and sediment issues in the EIS unaddressed by the Superfund assessment expertise. The Environmental Assessment Worksheet (EAW) decided the project was major, and as such required an Environmental Impact Statement (EIS). The Minnesota Department of Natural Resources (MDNR) was designated as the lead Responsible Government Unit (RGU) to produce the EIS. The U.S. Army Corps of Engineers (USACE) and the U.S. Forest Service were designated co-leads. A Memorandum of Understanding was finalized by the Minnesota Attorney General on Feb. 23, 2005. After that date the Federal government agencies became co-leads in this EIS. As such, both the National Environmental Policy Act (NEPA), its regulations, and all other related requirements apply to this EIS as well as state requirements that are more restrictive or different. As a result it is the direct responsibility of the Federal co-leads and the State to insure the EIS complies with NEPA and all other related federal and state requirements.

The DNR water appropriation permit must demonstrate that it is protective of human health before issuance (Minn. Stat. 103G.297(2)). The document that would support such a decision is the FEIS. The Federal and State procedural defects below demonstrate that inadequate evaluations were conducted in the FEIS such that no reasonable person can determine whether human health will be protected. Thus under statute the DNR cannot issue water appropriation permits.

We have two parts in our comments, the first is table in which we place violations of laws and regulations with basic details. A more detailed discussion of the specifics of the violations follows. Each table comment number conforms to the descriptive comments.

Violations Table

Substantive Comment Number Requiring Substantive Response	Legal Citation of Statute, Rules, Regulations, Policy, Guidance or MOU Violated.	Summary of Language of Law, Regulation Violated	Violation Count number	Violation Description	Evidence of violation
#1	NEPA 102(2)(D), 40 CFR 40 CFR 1502.1	Federal officials are responsible for entire scope under NEPA. NEPA requires federal officials to examine to the fullest extent possible to achieve full and fair discussion of significant environmental impacts.	#1	MDNR, USACE and USFS are responsible for the violation when they failed to follow impact sourcing protocols to identify that the scoping EAW did not include mine site risks. The scoping flaw is severe: the flaw persisted for two years of work until the mine site AERA was prepared in 2008; it taints the EIS process from the beginning to the degree that potentially the FEIS is fatally flawed.	*Scope not representative of entire facility.* Air Emissions Risk Assessment summary in the scope did not include the mine site. Details and the full AERA report were not included in the scoping (Scoping EAW, no date). Public could not know the AERA only covered the plant site. (Scoping EAW, no date, MDNR's PolyMet website) The mine site AERA was not prepared until 2008. (DEIS, Oct, 2009) All of the Agencies' responses to the air-related scoping comments, including a comment requesting an assessment of impacts to human health, stated the EAW said the AERA would be updated as necessary and no change to the scope was necessary. (scoping_comments.pdf, MDNR's PolyMet website)

#2	40 CFR 1506.5 (c) 40 CFR 1502.14	Federal officials are responsibl e for scope and objectivity of the entire EIS under NEPA NEPA requires agencies to "[r]igorous ly explore and objectively evaluate" potential impacts from "all reasonable alternative s"	#2	A. MDNR, USACE and USFS officials, as opposed to agencies, responsible for objectivity of the EIS, violated this regulation when they allowed the proposer and its advocate, with financial interests in the success of this project, to have undue influence in the SDEIS scoping, affecting the objectivity of the process and the ultimate content of the FEIS. and allowed the appearance of conflict of interest to enter the scoping process.	*Objectivity lost during scoping when project proposer given status similar to Federal Agencies.* PolyMet and Barr are regulated party and advocate, not stakeholders. IAP Planning Memoranda list PolyMet and Barr representatives in almost every planning group. Their presence in SDEIS scoping meetings had undue influence in decisions on how the EIS would be developed including in the risk assessment portion on which selection of alternatives is structured. (Impact Assessment Planning Summary Memos, 2011) A SDEIS group member verifies that PolyMet and Barr participated in the SDEIS scoping meetings, and stated that the proposer and/or its advocate actually, with USACE concurrence, *were leading* the meetings in which that person was participating. (Personal conversation, 9/1/17).

#3	40 CFR 1506.5 (c) 40 CFR 1502.1 APA Sec. 7 (c)	Federal officials are responsible for objectivity and content of the entire EIS under NEPA. NEPA requires federal officials to examine to the fullest extent possible to achieve full and fair discussion of significant environmental impacts. APA requires full disclosure.	#3	MDNR, USACE and USFS officials, responsible for the scope, objectivity, and content, and for full examination to achieve full and fair discussion of significant environmental impacts, violated NEPA when they allowed the proposer's presence in person or by its advocate to have undue influence and conflict of interest in the planning and preparation of the EIS by attending *and leading* meetings and doing additional work in the process.	*Objectivity lost during EIS preparation when project proposer and contractor given status similar to Federal Agencies.* Both PolyMet and Barr are regulated party and advocate, not stakeholders. The Coordination and communications plan directly included the project proposer and his consultant as an integral part of the government EIS process. For that reason the CCP does not have a section that describes how the Agencies will communicate with the proposer. Their presence in content meetings continued the undue influence on the content of the EIS. All of the Agencies' responses to the air-related scoping comments, including a MDNR-summarized comment requesting an assessment of impacts to human health, stated the EAW said the AERA would be updated as necessary and no change to the scope was necessary. (scoping_comments.pdf, MDNR's PolyMet website) Any section in which the Agencies relied on PolyMet or Barr documents only and/or for which PolyMet or Barr participated or was leading the meeting is subject to undue influence. For example, the FEIS section on Mercury at 5.2.10.2.6 is relied on in the USFS ROD on p. 39. But the FEIS discussion of no expected change in fish mercury concentrations does not explain that the Barr analysis does not include the distance far downstream the St. Louis River where sulfate from iron and taconite mining and processing upstream is being diluted as it travels downstream, eventually to a low concentration that enhances mercury methylation which could bioaccumulate in fish in that area. This concept, shared by several scientists with Maureen Johnson, an author of these comments, is only part of a scientific peer review by Len Anderson in which he rebuts many aspects of the Barr study. The Len Anderson peer

					review is found with a record indicating it was received by Stewart Arkley, MDNR on 8/13/10. This important review is neither discussed in the FEIS nor referenced; it was ignored by MDNR and, unless MDNR suppressed it, by the Agencies.

#4	40CFR 1506.5 (c)	Federal officials are responsibl e for objectivity and content of the entire EIS under NEPA.	#4	MDNR, USACE and USFS officials responsible for scope, objectivity, and content of the EIS, violated NEPA when USFS certified the FEIS with its ROD, but they did not and could not conduct a "hard look"* of the AERA that was included in the scope without its supporting full report.	MDNR, USACE and USFS officials did not conduct a hard look because they did not identify that the full AERA report was not available for review and require that it be included in the EIS versions. A hard look would include comparing the MPCA AERA process with standard methods of health risk assessment to determine its completeness and they did not require this work. Memoranda of understanding and communications and coordination plans do not supersede laws and regulations. Once the Federal agencies become co-leads they cannot limit their involvement to specific parts of the EIS and ignore other parts of the EIS under agreements.
#5	40CFR 1506.5 (c) APA, Sec. 7 (c)	Federal officials are responsibl e for scope, objectivity , and content of the entire EIS under NEPA APA requires full disclosure.	#5	MDNR, USACE and USFS violated this regulation when the FEIS scoping failed to require the risks of all chemicals of concern at a site to be quantified to identify human health impacts with the EPA's current standards of human health risk assessment.	USACE, USFS and MDNR officials did not include the full AERA report in the scope or in any public document available on the DNR Website. Therefore they could not have possibly taken a hard look at the accuracy or completeness of the AERA. MPCA does not reveal in its online guidance documents or published papers or in any version of the EIS the mechanisms it uses to aggressively reduce Chemicals of Concern and summed risks, so math and techniques cannot be checked and reviewed by MDNR, USACE, USFS, USEPA or the public. The authors and content of comments on the scoping EIS are hidden in the scoping_comments.pdf, MDNR's PolyMet website; we only have a brief summary sentence or two created by MDNR which may or may not reflect the author's intent. If the way that MDNR summarized our comments in the DEIS, SDEIS and FEIS is the same for scoping, the probability of twisting comments and non-responsive answers to substantive comments is high.

#6	40 CFR 1502.24, 44U.S.C. 3502(1)	Agencies shall insure professional integrity and scientific accuracy.	#6	MDNR, USACE and USFS violated these regulations when they allowed the proposer and proposer's contractor to attend scoping meetings, influencing the FEIS.	Planning summary memos 6/30/11 document the participation of the regulated party PolyMet with clear fiduciary interests and its advocate Barr.
#7	40 CFR 1502.24, 44U.S.C. 3502(1)	Agencies shall insure professional integrity and scientific accuracy.	#7	MDNR, USACE and USFS violated the regulations that required professional integrity when they allowed the proposer or its advocate to lead any meetings.	Our personal conversation, 9/1/17, with a group member verifies that PolyMet and Barr participated in the SDEIS scoping meetings, and the proposer and/or its advocate actually were leading the meeting with USACE concurrence. The appropriate tool for the brownfield including the mercury risks is described at https://www.epa.gov/risk/superfund-risk-assessment. The appropriate tool for the proposed project may be the superfund risk assessment tool, or this tool may be used: https://www.epa.gov/risk/conducting-human-health-risk-assessment.

#8	40 CFR 1502.24, 44U.S.C. 3502(1)	Agencies shall insure profession-al integrity and scientific accuracy.	#8	MDNR, USACE and USFS violated the regulations that require agencies to insure scientific accuracy when they allowed the limited capability of the AERA to be used in the 2005 EAW without including the full analysis, and allowed the EAW to state incorrectly that the air toxics impacts "do not have the potential for significant environmental or health effects."	MDNR, USACE and USFS did not could not take a hard look at the AERA in the EAW, evidenced by the fact that it remains in the FEIS. They did not insure scientific accuracy in this. Mesaba Energy Project DEIS, 02-2007. EIS-0382-DEIS-02-2007.pdf, p. 156, uses the "PolyMet Mining, Inc. AERA, dated May 2005" showing PolyMet's 2 of 3 air toxic risks from the risk driver chemicals are at the MDH thresholds. This is the only data that we could find from the Scoping EAW AERA. If the process-eliminated chemicals with small risks were added back, the MDH thresholds will be exceeded, so that the project as described in the EAW would likely exceed the MDH air toxicity thresholds. The limitations of the AERA process hide the actual air toxicity, so the AERA has neither integrity nor scientific accuracy, and the EAW statement that air toxics impacts "do not have the potential for significant environmental or health effects" is unsupported and misleading. The AERA is a MPCA permitting tool (MPCA, Air Emissions Risk Analysis (AERA), http://www.pca.state.mn.us/mvrifb5) The AERA is inappropriate for an EIS. The AERA relies only on toxicity values from MDH. It only addresses air, not ground water, surface water, soil or sediments, as demonstrated by the need for a waste water treatment system. It cannot deal with uncertainty. It ignores small amounts of risk by using risk driver chemicals. As an example, at the mine site we have identified at minimum 68 chemicals of potential concern that will be released from blasting (rock and blast residues). These chemical will dwarf the impacts from the 11 chemicals of chemicals of concern (chemicals for evaluation) currently

					identified in the AREA (Barr 2013i, Sec. 1.1) (see discussion below).** The standard for human health impacts is the EPA Human Health Risk Assessment protocols. The FEIS acknowledges the process operations wastes can be hazardous under MPCA rules (FEIS, p. 4-415), so EPA directives regarding hazardous waste apply to those. (https://archive.epa.gov/epawaste/hazard/tsd/td/web/html/risk.html) On November 5, 2015 the three co-leads (MDNR, USACE, USFS) Published a letter to interested parties stating they jointly prepared and completed the FEIS, a disclosure document. On March 3rd 2016 the Minnesota DNR certified its record of decision for FEIS. This certified that the FEIS completed the requirements of Minnesota Environmental Policy Act (MEPA). Less than 3 months after the certification for MEPA, on June 23, 2016 on the MPCA website, the MPCA is reopening the AERA, demonstrating that the AERA was incomplete in the FEIS. The August 2010 Communication and Coordination Plan makes it clear that no federal agency intended to assume responsibility for compliance with NEPA in the entire FEIS; DNR only wrote its ROD for compliance with MEPA; there is no planned ROD to state the entire FEIS is compliant with NEPA. This is a major federal action that requires the federal agencies to be responsible for the entire FEIS meeting NEPA.
#9	CFR40 1506.1	No action, as water permits, should be noticed for public review until the ROD is issued.	#9	MDNR violated this regulation by public noticing the water appropriation permits prior to the USACE ROD issuance.	A ROD has not been issued by USACE at this time. (phone conversation with USACE project manager, Sept. 11, 2017) The USACE ROD may have conditions that affect the volumes of used water and the volumes of discharge of treated water that can be permitted.

#10	NEPA Sec. 101 (b)	Federal agencies are responsible to assure use of resources without risk to health.	#10	MDNR, USACE and USFS violated this law when they did not determine the risk to health in all media by use of available standard human health assessment tools. .	MDNR, USACE and USFS did not evaluate the analyses for risk to health required by this law. The AERA is a MPCA permitting tool and inappropriate for an EIS, (MPCA, Air Emissions Risk Analysis (AERA), http://www.pca.state.mn.us/mvrifb5; https://archive.epa.gov/epawaste/hazard/tsd/td/web/html/risk.html ,)
#11	40 CFR 1508.7	The federal Agencies must use all practical means to improve functions and resources to fulfill NEPA	#11	MDNR, USACE and USFS violated this regulation when they did not determine the risk to health in all media by use of available standard human health assessment tools.	MDNR, USACE and USFS did not use EPA guidance for the appropriate tools for human health risk assessment and superfund human health risk assessment, free on the EPA website. The appropriate tool for the brownfield including the mercury risks is described at https://www.epa.gov/risk/superfund-risk-assessment. The appropriate tool for the proposed project may be the superfund risk assessment tool, or this tool may be used: https://www.epa.gov/risk/conducting-human-health-risk-assessment.
#12	40 CFR 1506.1 (f)	Agencies shall not commit resources prejudicing selection of alternatives	#12	MDNR, USACE and USFS violated this regulation because the inclusion of the proposer and its contractor throughout the EIS process prejudiced the selection of alternatives with conflict of interest and "undue influence."	The scoped proposal was changed during EIS preparation to producing concentrates instead of producing individual PGEs and precious metals. This reduced the potential of exceeding the MDH thresholds or other air quality parameters in the next AERA. It sends signals that we may see this process added back in the future, though it ought not be without another EIS. The AREA fails to have sufficient detail of all elements and chemicals released so the financial and technical abilities to control all emission cannot be predicted. The FEIS relies on "Adaptive Engineering" which basically says if a problem exists due to a lack of scoping thoroughness somehow they will find an engineering solution, without discussion of potential solutions, feasibility or cost.

#13	CFR40 1506.5	The agency is responsible for an independent evaluation. 1507.1	#13	MDNR, USACE and USFS violated this regulation because they or their independent contractor did not independently evaluate the AERA.	USACE and USFS could not independently take a hard look in evaluating the AERA because the full report was not present in the FEIS.
#14	40 CFR 1502.2 (a)	EIS shall be analytic rather than encyclopedic.	#14	MDNR, USACE and USFS violated this regulation because the FEIS is not analytic for human health; the AERA summary and the FEIS do not analyze or provide an Appendix for the analyses for human health risks.	MDNR, USACE and USFS did not provide the full AERA report with details, such as potential chemicals of concern, and rationale for their addition or deletion in the list of chemical of concern of the analysis. The FEIS contains thousands of summaries and multi-thousands of pages of references with references to the references. Yet a complete quantitative analysis for impacts and cumulative impacts on humans for exposures in all media is not included. The FEIS contains discussion and references about meeting the evaluation criteria and an AERA summary, that does not adequately identify and quantify risks and cumulative risks by deposition of dust, leachate from the waste rock piles, beneficiation and tailing basin seeps, and by accidents: stormwater and equalization basin overflows due to using only 30- and 40-year old precipitation data, leaks and undetected releases from the hydrometallurgical chemical smelter. By drowning reviewers in discussions in which supporting documents are based on assumptions, "best professional judgment," or non-existent, the FEIS format distracts reviewers from the major issues of human health impacts. So much information is given that it is impossible for a scientist or even a group or groups of scientists to thoroughly review, so much that the scientific principles of measurable impacts on human health were sometimes ignored, and comment requests for health impact assessments were denied by the Co-Leads.

#15	CAA, Sec 309	EPA must review and issue written comments on any matter relating to that Act.	#15	USEPA violated this law because, while USEPA has jurisdiction in evaluating air quality impacts, it did not appear to make an effort to review the AERA with a hard look at any stage of the EIS.	*No hard look during scoping results in significant underestimation of cumulative risks.* The evidence that USEPA did not review the Air Emissions Risk Assessment at any phase in the EIS is demonstrated by the continued use of the inappropriate AERA summary format. The MPCA is inappropriate because its limitations can be overcome by use of EPA's Human Health Risk Assessment. One of the limitations is a tendency to underestimate due to MPCA's requirements. Mesaba Energy Project DEIS 2/2007, cited some May 2005 AERA data for PolyMet, the only EAW data we have found. *EVEN IF* the Proposer's MPCA AERA process (inappropriately applied, scientifically deficient, data hiding) results were used, when the risks of the eliminated Chemicals of Concern (each with a Hazard Index risk of some number less than .1 and/or low cancer risks) are added to the AERA results, *several MDH health risk thresholds are exceeded.* The scoping EAW AERA summary statement demonstrates the *underestimation*: "The impacts associated with air emissions, …reasonably expected…do not have the potential for significant environmental or health effects." This statement would no longer reflect the risks of the proposal in the hypothetical calculation. Human health risk assessment addressing all media is more appropriate for the complexity of this project, constructed on a superfund brownfield, in wetlands, and especially since a plethora of sulfide mining superfund sites (156, per the Nationwide Identification of Hardrock Mining Sites, USEPA Inspector

					General, 2004) are being dealt with nationwide. In mitigation planning it is routine procedure to use human health risk assessments on the residual messes.

#16	40CFR 1501.2 (a) and 40 CFR §1502.6	Federal agencies must use a systematic interdisciplinary approach to insure proper use of science	#16	MDNR, USACE and USFS violated these regulations in that they failed to require current science with cumulative capability for human health impacts analysis using the proper scientific tool called a human health risk assessment available from USEPA since 1989.	In Response to Public Scoping Comments, 10/25/2005, the substantial comment AQ-12 requesting assessment of impacts to human health did not receive a substantial response. The response said the proposer already completed an AERA. Addressing air only would not address significant unresolved water quality problems in the removal of this type of rock, known and continue to exist since the state-funded scientific Regional Copper-Nickel Study beginning in 1976. The element of time in an EIS does not supersede this requirement for proper use of science. USACE, USFS and MPCA refused to use accepted risk assessment practices to capture all necessary releases and risks to humans. USACE, USFS and MPCA ignored EPA's model risk assessment tool called the Risk Assessment Guidance for Superfund that is routinely used in MPCA's Superfund program.
#17	40 CFR §1500.2 (d)	Agency must facilitate public involvement.	#17	MDNR, USACE and USFS violated this regulation when they did not include the full AERA report in any EIS version. The full report is not available electronically in the databases we have found.	The public was unable to review the full AERA report to be able to understand the many chemicals involved, which chemicals are Potential Chemicals of Concern, the justification for elimination of chemicals to create the final Chemicals of Concern List, and the ways in which human health risk is measured.
#18	40 CFR §1500.2, Administra-tive Procedures Act, Pub. L. 79-404, Sec.10(e)	EIS must be supported by evidence the agencies made the necessary analyses	#18	MDNR, USACE and USFS violated this law when they did not support the EIS with evidence the agencies made the necessary analyses for the AERA, which is only a summary, however a review of the AERA process indicates this analysis would still be insufficient.	Lacking a substantive full report, no one could review the AERA for accuracy and completeness, but a qualified reviewer (a toxicologist or experienced risk assessment specialist) would have found the scoping AERA lacking a full report, but if he found the full report, it inferred that the chronic hazard index and the cancer risk both would exceed the MDH thresholds for the project as presented in the scoping. (Mesaba Energy Project DEIS 2/2007, cites May 2005 AERA for PolyMet)

#19	40 CFR 1507.2	Agency must have capability to comply with NEPA Sec. 102(2)a regarding interdisciplinary approach, and Identify methods and procedures to insure that presently unquantified environmental values be considered, or to evaluate what others do for it.	#19	The violation is that MDNR, USACE and USFS did not have or hire a toxicologist or competent risk assessor to assure the interdisciplinary approach and identify appropriate methods for measuring human health impacts for an EIS of this magnitude.	No agency identified that the AERA in the scoping, the DEIS, the SDEIS, or the FEIS or any other version, was only a summary of risk drivers, and that the full report was not included for full review, therefore they did not assign or hire a toxicologist to review the EIS. USACE, USFS and MDNR are responsible for the non-substantial response to the MDNR's summary of EAW comment AQ-12 that "The EIS should include an assessment of human health." An assessment of human health must not be limited to air and does not eliminate non-risk-driver and other chemicals without justification. The response of "no change to scope" is an example of the lack of capable staff — a toxicologist would recognize this comment's value, evaluate it against the AERA, and find the AERA insufficient; or the toxicologist's review of the scope would identify the insufficiency of the AERA and replace it with the proper tool before it went out for comment. Agencies nether had a toxicologist or risk assessor or hired one evaluate in the AERA. DNR is not in the risk assessment business so any decision is arbitrary and capricious without having the risk assessment evaluated by a capable person, a toxicologist. Note: The NEPA regulations were last amended before the risk assessment tool was invented to address the then-unquantified risk values. The EPA risk assessment tools now are included in the methods and procedures for EIS.
#20	1507.2	The agencies must substantiate any analysis fundamental to the EIS.	#20	MDNR, USACE and USFS violated this regulation when they did not substantiate the AERA summary, a fundamental analysis to the EIS.	The evidence for this violation is that the full AERA report is not included in any version of the EIS.

#21	40 CFR 1502.17 & 1506.5	EIS shall list of names, qualifications of those responsible for analyses	#21	MDNR, USACE and USFS violated this regulation when they did not require the person(s) responsible for the AERA, a critical document, to be included in the List of Preparers. MDNR, USACE and USFS did not assure that a risk assessment specialist or toxicologist was listed in the List of Preparers for this complex project.	The list of names and qualifications lacks the project proposer and their consultants as described in the Coordination and Communication Plan for the important analyses they conducted. The names and qualifications of the preparers of the AREA, a major analysis, are not listed.
#22	CFR 1507.1	All agencies of the federal government shall comply with these regulations .	#22	MDNR, USACE and USFS violated this regulation when they not comply with the itemized federal laws and regulations listed above and had no exception.	The evidence for violating this regulation is shown above in this column.
#23	APA 5 U.S.C, 706(2)(a)	Agency action, findings, and conclusions must be held unlawful and set aside if they are arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.	#23	MDNR, USACE, and USFS and PolyMet actions for the FEIS, its findings and conclusions must be held unlawful and set aside because they are not in accordance with law due to all of the above violations.	The violations evidence in this entire column for all counts are the evidence that the EIS must be set aside because a major portion of the EIS, the risk assessment, on which alternatives are based is shown to be not in accordance with law.

* Hard-Look Doctrine is a principle of Administrative law that says a court should carefully review an administrative-agency decision to ensure that the agencies have genuinely engaged in reasoned decision making. A court is required to intervene if it "becomes aware, especially from a combination of danger signals, that the agency has not really taken a 'hard look' at the salient problems." The Administrative Procedure Act instructs federal courts to invalidate agency decisions that are "arbitrary" and "capricious".(USLegal.com definition)

NEPA imposes a duty to take a hard look at environmental consequences (Natural Res. Def. Council, Inc. v. Morton, 458 F.2d 827,838 (D.C. Cir. 1972) (quoting WAIT Radio v. F.C.C., 418 F.2d 1153, 1157 (D.C.Cir. 1969))

A hard look entails complete discussion of relevant issues, as well as meaningful statements regarding the actual impact of proposed projects. ((Earth Island Inst. V. U.S. Forest Serv., 442F.3d 1147, 1172 (9th Cir. 2006))

** Example

Identifying Chemicals of Potential Concern

The FEIS discusses and summarizes an AREA that was performed for the FEIS. An AERA itself is a novel application developed by MPCA. An AERA might work for emissions that are chemically simple. However this project is chemically complex. The AERA has no way to deal with multiple chemicals in multiple pathways.

This one example, and there are many more, is only describing some basic concepts. The PolyMet NorthMet mine site will produce a plethora of chemicals of potential concern. This includes but is not limited to the minerals and individual chemicals contained within the ore and waste rock. Upon blasting these chemicals will be released directly or indirectly into the air, soils, sediments, surface water, and ground water. The FEIS states that blasting of rock will occur 2 to 3 times a week. Each blast will produce 200,000-300,000 tons of broken rock (FEIS 3.0, p 3-42).

A MDNR report stated about the sulfate mineral Norite, a combination of minerals and sulfide minerals commonly found where PolyMet will mine in the Duluth Complex: "reducing norite rock particle size to less than 0.5 mm leads to near complete exposure of the majority of the sulfide mineral surfaces." (Wentz, 2013). It is reasonable to predict that blasting will release large volumes of this size particle. This size particle is available for dissolution in water or in such as lungs or organs, and a 2.5 mm particle is able to go to the deepest parts of the lungs, so this size is even smaller.

While searching published geological documents on the Partridge River Intrusion I have located 43 individual chemicals and average maximum and minimum concentrations of each found in the non-mineralized rock (waste rock) (Severson,1990). The FEIS identifies another 15 minerals and their concentrations (percentages), found in the rock (PolyMet 2007b, table 3). From this data it is reasonable to expect that blasted rock will release large amounts of fine particulates into the air and ultimately will be deposited in into the soils, sediments, and surface waters.

Additionally, the blasting agents used are Ammonium Nitrate Fuel Oil, a chemically unidentified "booster", and "unidentified "emulsion". Their use will be at the following rates: ANFO, 833,333 lb/month; Booster, 1,555 lb/month; Emulsion, 387,500 lb/month (FEIS Table 5.2.13-1). This totals 1,222,388 lb of blasting agents used per month. A number of articles in the published literature has examined residues from the use of ANFO blasting in wet environments. One such study demonstrated toxic fumes from blasting contains: NO, NO2, CO, bis(2-ethylhexyl)phthalate, C12 to C28 aliphatic hydrocarbons, methane, benzene, toluene, ethylbenzene, xylene. In addition, undetonated ANFO, which always occurs in a blast, can deposit in surface and ground water as nitrates, nitrite, ammonium (Defense R&D Canada 2010).

The chemicals of potential concern from my brief review above total 68. The AERA identified only 11 chemicals of concern at the mine site (Barr 2013i). There is no complete listing of the list of potential chemicals of concern in the AREA, nor is there a discussion of how each was assessed. As a result it is impossible for co-lead or federal agency, the MNDNR or the public to give a "hard look" to review the accuracy or completeness of the AREA.

As a result it is reasonable to state a major omission exists since:

Blasting agents will release significant quantities of chemicals to the human environment. (air, soil, sediments, waste rock and ore rock, surface and groundwater);

The AREA cannot be reviewed for accuracy or completeness;

An analysis of human health impacts related to soils, surface, and groundwater were not preformed.

In summary,

1. Only a very rudimentary review of potential chemicals of concern at the mine site from blasting and geochemistry alone finds 68 potential chemicals of concern. both the concentrations of each combined with the sheer mass of rock to be blasted

Thus the AERA is not sufficiently robust to capture necessary releases and risks to humans and ecological receptors.

2. No human health risk assessment has been performed on the proposed project that includes direct and indirect impacts to soil, surface and ground water, and sediments.

3. The existing AERA has not, and cannot, be reviewed for accuracy and completeness.

4. The AERA, fails to satisfy the requirements of the federal laws and regulations nor the DNR's own operating statute MN Stat. 103G.297 (2). As a result the DNR has a lack of foundation to proceed with water appropriation permits.

References:

(Defence R&D Canada 2010) Assessment of ANFO on the Environment, Sylvie Brochu, Defense R&D Canada- Valcartier, Technical Memorandum, DRDC Valcartier ™ 2009-195, January, 2010.

Severson, 1990, GEOLOGY, GEOCHEMISTRY, AND STRATIGRAPHY OF A PORTION OF THE PARTRIDGE RIVER INTRUSION, Mark J.Severson and Steven A. Hauck, Natural Resources Research Institute, University of Minnesota, Technical Report NRRI/GMIN-TR-89/11, Tables 2-5.

Wenz, 2013, ROCK COMPOSITION, LEACHATE QUALITY AND SOLUTE RELEASE AS A FUNCTION OF PARTICLE SIZE FOR THREE WASTE ROCK TYPES: AN 18-YEAR LABORATORY EXPERIMENT, Zach Wenz, Kim Lapakko, David Antonson, Minnesota Department of Natural Resources, Division of Lands and Minerals, December 2013, p. i.

Thank you for this opportunity to submit comments. We believe each is substantial and requires a substantial response.

Sincerely,

Bruce L. Johnson

Maureen K. Johnson

cc:

U.S. Corps of Engineers

U.S. Forest Service

U.S. EPA Region V and HQ

U.S. Office of Management and Budget

Office of Minnesota Attorney Generals

Office of Minnesota State Auditor